

Intermontanus

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ANNOUNCEMENTS

NEW MEETING COORDINATOR

The Utah Association of Herpetologists has a new meeting coordinator, Mike Nordfelt. Mike has an interest in all herps but is particularly interested in the ecology of lizards. He is working on a behavioral study of leopard lizards, *Gambelia wislizenii*, with Jessie Shaw in which they have observed several unique behaviors and habits of these lizards. In addition, he is testing the effect of different full-spectrum lights on the growth of the side-blotched lizard, *Uta stansburiana*, in captivity. Mike is also interested in herp photography.

If you have any suggestions for future meetings you can contact Mike at the meetings or at (801) 295-7454. Anyone interested in volunteering to help UTAH, in any aspect, is invited to contact Breck at (801) 752-0297.

BASIN & RANGE WEEKEND SEMINAR

The Great Salt Lake Audubon Society and the BLM are cosponsoring the 12th annual Basin and Range weekend seminar June 4 and 5, 1994 at Clover Springs campground. The campground is located on the east side of Johnson Pass between Rush and Skull Valleys. The seminar brings together students of nature, lay people, and professionals for field studies in the Great Basin. Formal classes titled Basin & Range Birds, Raptors of the Great Basin Desert, Great Basin Desert Bird Community, Desert Plants & Ethnobotany, Amphibians & Reptiles of the Great Basin, Great Basin Range Ecological Diversity, Desert Stream Ecology, History of Skull and Rush Valleys, and Archeology & Prehistoric behavior will be held on Saturday and Sunday. For more information contact Great Salt Lake Audubon, 144 South 900 East #11, Salt Lake City, UT 84102-4162.

NEW PUBLICATIONS

Rat Snakes: A Hobbyist's Guide to Elaphe and Kin. by Ray Staszko and Jerry G. Walls, T.F.H. Publications, Inc., Neptune, NJ. 1994. 208 pages. \$34.95. See review by Stan Draper in this issue.

Snakes: A Natural History edited by Roland Bauchot. Sterling Publishing Co., Inc., NY. 1994. 220 pages \$35.00. See review by Breck Bartholomew in this issue.

Biology of Amphibians by William E. Duellman and Linda Trueb. Johns Hopkins University Press, Baltimore, MA. 1994. 670 pages. \$39.00. This is a paperback reprint of the 1986 edition with a new preface which cites many recent studies in amphibian biology. A must for anyone interested in amphibian biology.

We are glad to announce the creation of *Dumerilia*, a new herpetological journal, published by the Association des Amis du Laboratoire des Reptiles et Amphibiens du Muséum national d'Histoire naturelle de Paris (AALRAM). The name of this journal is a tribute to the memory of André-Marie-Constant Duméril (1774-1860), one of the founders of herpetology; author with Gabriel Bibron (1808-1846) of the masterly book series entitled *Erpétologie générale* (1834-1854).

Dumerilia will be an occasional publication, open to papers in French or English from the staff of the Laboratoire des Reptiles et Amphibiens of the Paris Museum (including associated and corresponding members) and from other colleagues but dealing with the collections of this laboratory or described new taxa, the holotypes of which are deposited in these collections.

The first volume of *Dumerilia*, *Liste bibliographique des Reptiles actuels. I. Chéloniens* by Patrick David, will be published during the first quarter of 1994. It is a book (roughly 100 pages), the first of a series which is intended to cover all living reptiles. Each volume of this series contains: (1) an introduction; (2) a list of all taxa (from class to subspecies) currently recognized as valid, scientific name (with author and date), its French and English common names, and a list of selected references to major works through which much more references can be traced; (3) notes dealing with litigious points; (4) a detailed bibliographic list of all references quoted (full citations).

Volume 1 of *Dumerilia* (chelonians) can be ordered as follows:

- Payment in U.S. Dollars (\$26 for individuals; \$52 for institutions): by cheques payable to "AALRAM", sent to: AALRAM, c/o Patricia B. Zug, Division of Amphibians and Reptiles, NHB mail stop 162, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, U.S.A.

- Payment in French Francs (130 FF for individuals, 260 FF for institutions): by cheques payable to "AALRAM" sent to: AALRAM, c/o Alain Dubois, Laboratoire des Reptiles et Amphibiens, Muséum national d'Histoire naturelle, 25 rue Cuvier, 75005 Paris, France.

Russian Journal of Herpetology (in English) is an international, multidisciplinary journal and publishes articles covering both basic and applied research on recent and fossil amphibians and reptiles. All aspects of herpetology including systematics, distribution, speciation, phylogeny, morphology as well as behavior, ecology, and toxinology of amphibians and reptiles will be presented.

Of particular emphasis is the conservation of species of amphibians and reptiles, their associations and habitats. Although much attention is given to fundamental research, papers devoted to breeding in captivity and propagation of amphibians and reptiles will be welcomed and presented in a special part of the journal.

The ultimate aim of the journal is to provide an effective medium for communication of the latest and best scientific information from the expanding, interdisciplinary, and international scientific community focusing on new methods and ideas in progress and to promote cooperation between Russian and foreign scientific and commercial organizations.

Types of contributions include: Original papers; invited or contributed reviews on specific topics; short communications on topics of immediate interest, new methods and ideas in progress; notices of meetings, symposia and short courses; and book reviews.

The contents of volume 1, number 1 are: On Unusual Peculiarities of Head Morphology in Therocephalian *Hexacynodon purlinensis*; Tendons of Jaw Muscles in Amphibia and Reptilia: Homology and Evolution; Postmaturation Skull Development in *Xenopus laevis* (Anura, Pipidae); Late-Appearing Bones and Their Bearing on the Pipid Ancestral Morphology; On Unique Forms of Anomalous Sacral Structure in Tailless Amphibians; *Vietnascincus rugosus*, a New Genus and Species of the *Dasia*-like Arboreal Skinks (Sauria,

Scincidae) from Vietnam; Some Aspects of Historical Biogeography of Asian Rock Agamids; Role of Phylogenetic Relations and Conditions of Habitat of Lizards of "*Lacerta saxicola*" Complex in Formation of the Heat Resistance Level of Tissue as Specific Character; Annotated Checklist of Amphibian Type Specimens Collection of the Zoological Museum of M. V. Lomonosov Moscow State University; Ecology of the Himalayan Newt (*Tylotriton verrucosus*) in Darjeeling Himalayas, India; A Comparative Study of Intra- and Inter-Population Variation in Two Sympatric Lizards, *Lacerta agilis boemica* and *L. strigata* in Daghestan; Courtship Behavior, Fertilization of Eggs, and Rearing in Captivity of the Semirechensk Salamander *Ranodon sibiricus* Kessler (Amphibia, Caudata).

Subscriptions to the *Russian Journal of Herpetology* are \$40.00 (for individuals) or \$80 (for Libraries). Send checks payable to the "Russian Journal of Herpetology" to: Russian Journal of Herpetology, Museum of Vertebrate Zoology, University of California, Berkeley, CA 94720.

Although not a new publication, *Asiatic Herpetological Research* is a relatively young journal published by the Asiatic Herpetological Research Society and the Chinese Society for the Study of Amphibians and Reptiles. The journal is published once each year and covers all aspects of Asian herpetology.

Subscriptions to *Asiatic Herpetological Research* are \$25 per year (\$45) for libraries. Send checks payable to "AHRS" to: Asiatic Herpetological Research Society, Museum of Vertebrate Zoology, University of California, Berkeley, CA 94720.

FIELD TRIP NOTES

SUMMARY OF THE AMPHIBIAN COUNT FIELD TRIP

This year's amphibian count was held in the form of a field trip to Capitol Reef National Park. Four of us: Breck Bartholomew, Mike Nordfelt, Evan Pool, and Jessie Shaw left for Capitol Reef on Friday April 23. We arrived at an oxbow in the Fremont River at 9:15 pm

Utah Association of Herpetologists

Intermontanus

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Meeting Coordinator: Mike Nordfelt

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and immediately heard some toads calling as we hiked down to the water. Almost all of the amphibians were calling from the north and east side of the oxbow, so this is where we concentrated our efforts. As we approached the water's edge we identified several Woodhouse toads, *Bufo woodhousii*. Their call is a much more raspy trill than the whistle-like trill of the southwestern and red-spotted toads in southern Utah (*Bufo microscaphus* and *B. punctatus* respectively). As we rounded the northeast corner of the oxbow we found an egg mass of the leopard frog, *Rana pipiens*. Leopard frog egg masses consist of a large ball of individual eggs attached to each other and to submerged vegetation. We also found our first leopard frog in this same little area. The frog was a beautiful fluorescent green. As we continued down the east side of the oxbow we found several more Woodhouse toads and leopard frogs and one more *R. pipiens* egg mass. In all we found 30 Woodhouse toads and 16 leopard frogs.

On Saturday, we returned to the oxbow to photograph the egg masses and any amphibians we could find. We found a couple of *B. woodhousii* egg masses that we had missed the night before. These egg masses are also distinct from the other toads in southern Utah because the eggs are laid singly in a long string. *Bufo microscaphus* eggs are also in a long string, but the eggs are doubled up or packed more closely within the string. The eggs of *B. punctatus* are laid more individually than in strings.

After looking for amphibians we began looking for lizards. Several side-blotched lizards, *Uta stansburiana*, eastern fence lizards, *Sceloporus undulatus*, and a single tree lizard, *Urosaurus ornatus*, were found on a rocky slope near the oxbow. Great Basin whiptail lizards, *Cnemidophorus tigris*, were seen in the less rocky areas and a single sagebrush lizard, *Sceloporus graciosus*, was found too.

Most of Saturday was spent hiking around the park looking for a good spot to survey for amphibians during the evening. Unfortunately the only place we found was along Pleasant Creek and outside the park. The area didn't look like it would yield very many amphibians, although there were three *B. woodhousii* egg masses there. In fact one of the egg masses was being deposited as we watched. Not far from this site we found a road-killed gopher snake, *Pituophis melanoleucus deserticola*. Mike and Jessie had found a large DOR gopher snake earlier in the morning between Capitol Reef and Hanksville. These were the only two snakes found on the trip.

On Saturday night we surveyed the oxbow again. We did stop at the Pleasant Creek site, but we only found three Woodhouse toads. Activity at the oxbow was noticeably different, very few frogs were calling and we only found 17 Woodhouse toads and 13 leopard frogs. The only reasons we could come up with for the difference was the difference in weather between the two nights. On Friday the sky was cloudy and there wasn't a wind, but on Saturday the sky was clear with a full moon and the wind was blowing. We were unable to test the humidity and barometric pressure and we neglected to take temperatures for the two nights. Nevertheless, it was a good experience to see how different the same area can be on consecutive nights.

This first field trip was successful and we will try to organize another one for next year's amphibian count.

FEATURES

TAXONOMY AND THE SUBFAMILY PYTHONINAE

Breck Bartholomew
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Kluge (1993) recently published a paper on the phylogeny of the subfamily pythoninae in which he recommends several changes to the current taxonomy of this group. Since taxonomy is a vital part

of all aspects of biology, and pythons are of particular interest to many herpetologists, Kluge's recommendation deserves serious consideration. Pythonine taxonomy has seen several revisions in recent years (see Kluge 1993 for a review), but none of these were as extensive as Kluge's and few of the others analyzed the data using the Evolutionary Species Concept of Frost and Hillis (1990).

Since most biologists rely on taxonomy to communicate about the animals they study, few biologists accept changes in taxonomy without a great deal of discussion and contemplation. This reluctance to change works as a check for systematists, but it also works to hinder the study of many aspects of biology. For example, it is well known that the North American rat snakes *Elaphe* are more closely related to *Pituophis* and *Arizona* than to any Old World *Elaphe*, yet we continue to indicate otherwise in our taxonomy. Situations like this make it difficult for the comparative biologist to make accurate and informative comparisons between taxa, particularly when they are trying to control for phylogenetic constraints. For this reason alone we should be more willing to accept taxonomic hypotheses when they are adequately robust and more thorough than previous studies. Many people disagree with this view because they are more conservative and afraid (rightly so, in some cases) that names would be changing so fast taxonomy would become unnecessarily burdensome.

Taxonomy should be viewed as most other aspects of biology are: as a series of hypotheses. Unfortunately, too many people view taxonomy as a truth in biology; something which should not be changed. But, taxonomy is just a series of hypotheses of relationships which change depending on the theoretical constraints of the concept

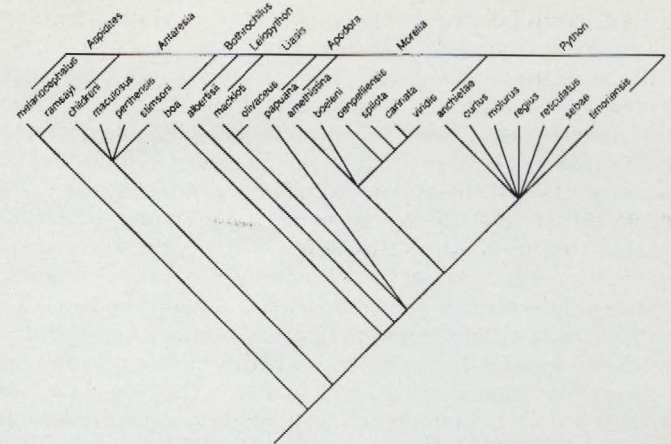


FIG. 1. The monophyletic phylogeny recognized by Kluge 1993, based on a strict consensus of the 17 equally most parsimonious hypotheses of pythonine sister species relationships. See Kluge 1993 for more details.

used, as well as the robustness of the characters used to determine the relationships. Using the rat snake example above, it is easy to see why Old and New world rat snakes are classified together when you consider the taxonomy was based on morphological characters. However as we have developed new, more robust, techniques like molecular biology and biochemistry, we have determined the morphological rat snake group is an unnatural one. Yet we continue

Table 1. Comparison of the pythoninae as recognized by most herpetologists today (Ross & Marzec 1990), Kluge 1993, and Underwood & Stimson 1990. Species marked with an asterisk (*) were not included in Ross & Marzec's book.

Ross & Marzec 1990	Kluge 1993	Underwood & Stimson 1990
<i>Aspidites melanocephalus</i> <i>A. ramsayi</i>	<i>Aspidites melanocephalus</i> <i>Aspidites ramsayi</i>	<i>Aspidites melanocephalus</i> <i>Aspidites ramsayi</i>
<i>Chondropython viridis</i>	<i>Morelia viridis</i>	<i>Morelia viridis</i>
<i>Liasis albertisii</i> <i>Liasis boa</i> <i>Liasis boeleni</i> <i>Liasis childreni</i> <i>Liasis fuscus</i> <i>Liasis mackloti</i> <i>Liasis maculosus</i> *	<i>Leiopython albertisii</i> <i>Bothrochilus boa</i> <i>Morelia boeleni</i> <i>Antaresia childreni</i>	<i>Morelia albertisii</i> <i>Morelia boa</i> <i>Morelia boeleni</i> <i>Morelia childreni</i> <i>Morelia fusca</i> <i>Morelia mackloti</i> <i>Morelia maculosa</i>
<i>Liasis olivaceus</i> <i>Liasis papuana</i> <i>Liasis perthensis</i> *	<i>Liasis mackloti</i> <i>Antaresia maculosa</i> <i>Liasis olivaceus</i> <i>Apodora papuana</i> <i>Antaresia perthensis</i> <i>Antaresia stimsoni</i>	<i>Morelia olivacea</i> <i>Morelia papuana</i> <i>Morelia perthensis</i> <i>Morelia stimsoni</i>
<i>Liasis stimsoni</i> *		
<i>Morelia amethistina</i> <i>Morelia oenpelliensis</i> <i>Morelia spilota</i> <i>Morelia carinata</i> *	<i>Morelia amethistina</i> <i>Morelia oenpelliensis</i> <i>Morelia spilota</i> <i>Morelia carinata</i>	<i>Morelia amethistina</i> <i>Morelia oenpelliensis</i> <i>Morelia spilota</i> <i>Morelia carinata</i>
<i>Python anchietae</i> <i>Python bredli</i> <i>Python curtus</i> <i>Python molurus</i> <i>Python regius</i> <i>Python reticulatus</i> <i>Python sebae</i> <i>Python timoriensis</i>	<i>Python anchietae</i> <i>Python curtus</i> <i>Python molurus</i> <i>Python regius</i> <i>Python reticulatus</i> <i>Python sebae</i> <i>Python timoriensis</i>	<i>Python anchietae</i> <i>Morelia bredli</i> <i>Python curtus</i> <i>Python molurus</i> <i>Python regius</i> <i>Python reticulatus</i> <i>Python sebae</i> <i>Python timoriensis</i>

to use it; mostly because the molecular biologists which determined the group was unnatural were reluctant to become systematists.

Kluge's study analyzed more characters than any previous study of these snakes, and he analyzed the usefulness of each character for its taxonomic value. Using only the informative characters, he ran the data on a computer program which determines the shortest possible phylogenetic tree (i.e., the evolutionary tree which requires the fewest changes). He then combined the 17 shortest trees into a strict consensus of all 17 trees (Fig. 1). Using the Evolutionary Species Concept he broke the tree into reasonable monophyletic groups (all members of the group share a common ancestor) and assigned these groups to genera (Fig. 1). I believe Kluge's study is the most robust of the various studies of this subfamily to date and I accept his taxonomic recommendations. The other available taxonomies for this group are either paraphyletic (a group descended from one ancestor, but one in which some of the descendants are classified as coming from a different ancestor), polyphyletic (derived from two or more unrelated ancestors), or both.

I cannot tell you which study to follow, this you must decide for yourself. I have included a comparison of three taxonomies in Table 1. for you to consider. However, I have not presented an in depth comparison of the alternative hypotheses. Anyone interested in the taxonomy of this group should read the studies and decide for themselves.

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HERPETOCULTURE & HUSBANDRY

THE IMPORTANCE OF SUBSTRATE: A CASE HISTORY OF *BASILISCUS PLUMIFRONS*

Robert Nahavec
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Recently I received a female *Basiliscus plumifrons* with large scabs (ca. 15 x 10 mm) on the hind feet. The feet were severely inflamed and soft and mushy to the touch. The animal was born and raised in a zoo then eventually sold, along with a male *B. plumifrons*, to a private collection here in Salt Lake. Both animals were received in good health and were placed in an elaborate cage with a pond, live plants, a branch for basking and a dirt substrate. The male remained healthy, but the female developed large sores on the hind feet.

Originally the owner took the animal to a veterinarian who removed the scabs, drained and cleaned the sores. A topical antibiotic was administered and the feet healed. In time, the sores and swelling returned. At this point the owner decided to get rid of the animals and eventually contacted me about the female.

When I received the female *B. plumifrons* I placed it in a cage with a neomycin treated corrugated paperboard substrate. Fresh water

was available *ad libum* and the lizard was fed a diet of pink mice and crickets. Scabs were removed, open sores drained, and a topical antibiotic (animax) administered. Originally, the feet were bandaged, but the bandages remained secure for only a short while because of the normal movement of the animal. Only one treatment was required and the lizard remained healthy during the following six months. Scabs on the sole of the feet did not return, the swelling completely subsided, and the feet have a normal appearance except for scars left by the large scabs.

In conclusion, I believe the dirt substrate was responsible for the infection. Why the male *B. plumifrons* did not develop the same symptoms as the female is unknown. Possibly different habits of the two animals in the cage. For example, the female may have spent more time on the floor of the cage because of an aggressive cagemate with the male spending more time on the branch. The female may have injured her rear feet somehow, making them more susceptible to infection then never being able to heal properly. In any case, the female did well on a clean substrate and last I heard was still healthy. This case illustrates the importance of a clean and sanitary substrate in reptile husbandry.

BOOK REVIEWS

RAT SNAKES: A HOBBYIST'S GUIDE TO *ELAPHE* AND KIN.

By Ray Staszko and Jerry G. Wells. T.F.H. Publications, Inc. 1994
208 pp. \$34.95

When I first heard about this new book on rat snakes, I was, at the very least, skeptical. After all it is published by T.F.H. Publications, Inc., who in the past have not been known for issuing new photographs of animals. I purchased it anyway, because of my fondness for this genus of snakes and their close relatives.

I was genuinely surprised at the quality of new pictures contained within this publication. I only recognized a couple previously published photographs. The authors tried to provide at least one photograph of each species discussed, although, in my opinion, they went a little overboard with *Elaphe g. guttata*. Even though the "corn snake" is an important part of this genus, it is already very well known and has its own color photo book on the market.

The idea of following in the footsteps of Markel's "Kingsnakes and Milksnakes" drawings of the head and dorsal view of the midbody pattern was well received. Though done very well by the same artist, some of the colorings did seem on the dull side.

The general care information is a plus for the beginner and intermediate herpetoculturist. Whenever given the specific care for individual species was brief but usually as accurate as is possible. When giving information about certain species and subspecies, the authors tried, with success, to show that this group of serpents is still in need of a lot of field work and taxonomic study. One big example is "*Elaphe*" *rufodorsata*. Very soon, I believe, this animal will be reclassified to its own or some other pre-existing garter or water snake genus, if for no other fact than it is a live bearer!

The range maps shown are too general for my taste, but it is also a case where there is need for more field work and there are other books where more exact information can be found. A lot of these books and magazines are listed in a short but well rounded bibliography.

All in all, this book really fills a void in this particular literature field. It will be a help to beginners and experienced breeders alike and obtainable within most everybody's budget. I recommend it with no real reservations to everybody with even the slightest interest in rat snakes and snakes in general.

Stan Draper
Skaless-n-Tails
Salt Lake City, Utah

SNAKES: A NATURAL HISTORY

Edited by Roland Bauchot. Sterling Publishing Co., Inc. 1994. 220 pp. \$35.00

Snakes: A Natural History was originally written in French by several well known French Herpetologists. The dust jacket states that "no other work covers such a wide range of topics so thoroughly," and this may be correct. However, the book has so many flaws that most readers will come away with an inaccurate picture of snake biology and diversity. Unfortunately, I believe most of these errors are the fault of the translators, editors, and lay-out artists, rather than the authors.

The book begins with a brief forward then it dives straight into the first chapter "A Portrait of Snakes," and I mean dives. For example, the second paragraph reads: "The epidermis is composed of a superficial layer or cuticle, which is often covered with spikes or microscopic crests that diffract the light, giving snakes some of their coloration. Four layers of cells are superimposed: at the surface, a keratin-rich layer that is eliminated with each molting, a thick and more flexible corneal layer, an intermediary zone, and the deeper basal layer."

The other chapters are: Origin & evolution of snakes; Diversity of snakes; Nervous system & sensory organs; Locomotion; Physiology; reproduction & growth; Predation & nutrition; Habitats & life-styles; Environment & population dynamics; Coloration; Postures & behavior; Snakes' enemies; Mythology; Snake venom & pharmacopoeia; and Commerce, legislation & protection.

In general, the book covers several aspects of snake biology which are important, but usually over-looked in other books. The retina, for example, is more diverse in snakes than in any other vertebrate and the study of the retina is likely to uncover many interesting relationships between snakes and shed some light on snake evolution. To date very few herpetologists have given retinal structure the attention it deserves as a systematic tool (but see Walls

1942; Underwood 1967; Rasmussen 1979; and Rasmussen 1985;).

A couple of the chapters are little more than lists of snake species which show specific characteristics (coloration, habitat, etc.), but most of the chapters offer a broader view and discuss the biological diversity and importance of snakes.

The downside of the book is the poor translation and lay-out. It is fairly obvious the translators were not herpetologists. They often use the literal translation of words instead of the English biological equivalent. This is particularly distressing when Asian pitvipers are called rattlesnakes. In another case communal behavior is called reunions. Terms like this are used throughout the book and may prove distracting to anyone who is not comfortable with the terminology.

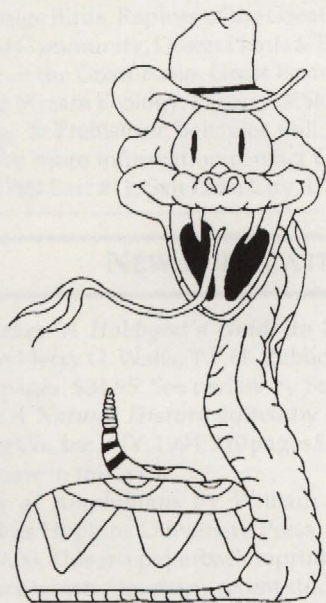
The problems with the lay-out are three-fold. First, some of the photographs were printed upside-down. Second, there is a lot of empty space in the book which could have been filled by better organization of the text and figures. Finally, some of the text is misplaced or lost. I noticed on page 40, a paragraph had been split and the second half of it was placed above the first half in a separate section. Then in one of the later chapters the beginning of a sentence or paragraph was missing entirely.

These problems are so pronounced that I doubt the intended audience, amateurs and the general public, will be able to gain much from this book. If however you never actually read books, but you just want some nice pictures, this book will satisfy you. Because the book was written by French herpetologists the coverage of African, Asian, and European snakes is much greater than most U.S. books. These snakes also figure prominently in the photographs. Most of the photographs (over 500 of them) are of high quality.

If you are really interested in snake natural history I would have to recommend Richard Shine's book, *Australian Snakes: A Natural History* (1991) before this book. Although Shine's book lacks the broad coverage of this book, it also lacks the text and lay-out problems; a little accurate knowledge is much better than a lot of not-so-accurate knowledge. Undoubtedly the worst thing about *Snakes: A Natural History* is its faults could have been avoided by the publisher. I'm sure the original book *Les Serpents* would make a fine addition to any herp library, if you can read French.

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Next Meeting: Tuesday, 31 May 1994 at 7:00 pm in room 212 of the University of Utah's Biology Building. **Dr. Gloria Wurst** will present a talk about her work on salamander population genetics. After the talk there will be a drawing for Raymond L. Ditmars' classic book "*Snakes of the World*" and a desert tortoise T-Shirt. Call UtAH if you need directions to the U of U biology building. **See you there!**



Eumeces skiltonianus, Washington County, Utah

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